> This Raw Listing contains the General Information
> Section and up to first 5 pages.

ENTERED

```
1    <110> APPLICANT: Winslow, Barbara J.
2          Cochran, Mark D.
3    <120> TITLE OF INVENTION: Recombinant Virus Expressing Foreign DNA Encoding
4          Feline CD80, Feline CD86, Feline CD28, Feline CTLA-4 or
5          Feline Interferon-gama And Uses Thereof
6    <130> FILE REFERENCE: 54957-B
7    <140> CURRENT APPLICATION NUMBER: US/09/303,040
8    <141> CURRENT FILING DATE: 1999-04-30
9    <150> EARLIER APPLICATION NUMBER: 60/083,870
10   <151> EARLIER FILING DATE: 1998-05-01
11   <160> NUMBER OF SEQ ID NOS: 82
12   <170> SOFTWARE: PatentIn Ver. 2.0
13   <210> SEQ ID NO 1
14   <211> LENGTH: 941
15   <212> TYPE: DNA
16   <213> ORGANISM: feline CD80
17   <220> FEATURE:
18   <221> NAME/KEY: CDS
19   <222> LOCATION: (1)..(876)
20   <400> SEQUENCE: 1
21         atg ggt cac gca gca aag tgg aaa aca cca cta ctg aag cac cca tat   48
22         Met Gly His Ala Ala Lys Trp Lys Thr Pro Leu Leu Lys His Pro Tyr
23          1               5                   10                  15
24         ccc aag ctc ttt ccg ctc ttg atg cta gct agt ctt ttt tac ttc tgt   96
25         Pro Lys Leu Phe Pro Leu Leu Met Leu Ala Ser Leu Phe Tyr Phe Cys
26                      20                  25                  30
27         tca ggt atc atc cag gtg aac aag aca gtg gaa gaa gta gca gta cta  144
28         Ser Gly Ile Ile Gln Val Asn Lys Thr Val Glu Glu Val Ala Val Leu
29                  35                  40                  45
30         tcc tgt gat tac aac att tcc acc aaa gaa ctg acg gaa att cga atc  192
31         Ser Cys Asp Tyr Asn Ile Ser Thr Lys Glu Leu Thr Glu Ile Arg Ile
32              50                  55                  60
33         tat tgg caa aag gat gat gaa atg gtg ttg gct gtc atg tct ggc aaa  240
34         Tyr Trp Gln Lys Asp Asp Glu Met Val Leu Ala Val Met Ser Gly Lys
35          65                  70                  75                  80
36         gta caa gtg tgg ccc aag tac aag aac cgc aca ttc act gac gtc acc  288
37         Val Gln Val Trp Pro Lys Tyr Lys Asn Arg Thr Phe Thr Asp Val Thr
38                      85                  90                  95
39         gat aac cac tcc att gtg atc atg gct ctg cgc ctg tca gac aat ggc  336
40         Asp Asn His Ser Ile Val Ile Met Ala Leu Arg Leu Ser Asp Asn Gly
41                      100                 105                 110
42         aaa tac act tgt att att caa aag att gaa aaa ggg tct tac aaa gtg  384
43         Lys Tyr Thr Cys Ile Ile Gln Lys Ile Glu Lys Gly Ser Tyr Lys Val
44                      115                 120                 125
```

```
45        aaa cac ctg act tcg gtg atg tta ttg gtc aga gct gac ttc cct gtc    432
46        Lys His Leu Thr Ser Val Met Leu Leu Val Arg Ala Asp Phe Pro Val
47            130                 135                 140
48        cct agt ata act gat ctt gga aat cca tct cat aac atc aaa agg ata    480
49        Pro Ser Ile Thr Asp Leu Gly Asn Pro Ser His Asn Ile Lys Arg Ile
50        145                 150                 155                 160
51        atg tgc tta act tct gga ggt ttt cca aag cct cac ctc tcc tgg ctg    528
52        Met Cys Leu Thr Ser Gly Gly Phe Pro Lys Pro His Leu Ser Trp Leu
53                            165                 170                 175
54        gaa aat gaa gaa gaa tta aat gcc atc aac aca aca gtt tcc caa gat    576
55        Glu Asn Glu Glu Glu Leu Asn Ala Ile Asn Thr Thr Val Ser Gln Asp
56                            180                 185                 190
57        cct gaa act gag ctc tac act att agc agt gaa ctg gat ttc aat atg    624
58        Pro Glu Thr Glu Leu Tyr Thr Ile Ser Ser Glu Leu Asp Phe Asn Met
59                195                 200                 205
60        aca aac aac cat agc ttc ctg tgt ctt gtc aag tat gga aac tta cta    672
61        Thr Asn Asn His Ser Phe Leu Cys Leu Val Lys Tyr Gly Asn Leu Leu
62            210                 215                 220
63        gta tca cag atc ttc aac tgg caa aaa tca gag cca cag cct tct aat    720
64        Val Ser Gln Ile Phe Asn Trp Gln Lys Ser Glu Pro Gln Pro Ser Asn
65        225                 230                 235                 240
66        aat cag ctc tgg atc att atc ctg agc tca gta gta agt ggg att gtt    768
67        Asn Gln Leu Trp Ile Ile Ile Leu Ser Ser Val Val Ser Gly Ile Val
68                            245                 250                 255
69        gtg atc act gca ctt acc tta aga tgc cta gtc cac aga cct gct gca    816
70        Val Ile Thr Ala Leu Thr Leu Arg Cys Leu Val His Arg Pro Ala Ala
71                260                 265                 270
72        agg tgg aga caa aga gaa atg ggg aga gcg cgg aaa tgg aaa aga tct    864
73        Arg Trp Arg Gln Arg Glu Met Gly Arg Ala Arg Lys Trp Lys Arg Ser
74                275                 280                 285
75        cac ctg tct aca tagattctgc agaaccactg tatgcagagc atctggaggt       916
76        His Leu Ser Thr
77            290
78        agcctcttta gctcttctct actag                                       941
```

79 <210> SEQ ID NO 2
80 <211> LENGTH: 292
81 <212> TYPE: PRT
82 <213> ORGANISM: feline CD80
83 <400> SEQUENCE: 2

```
84        Met Gly His Ala Ala Lys Trp Lys Thr Pro Leu Leu Lys His Pro Tyr
85        1               5                   10                  15
86        Pro Lys Leu Phe Pro Leu Leu Met Leu Ala Ser Leu Phe Tyr Phe Cys
87                    20                  25                  30
88        Ser Gly Ile Ile Gln Val Asn Lys Thr Val Glu Glu Val Ala Val Leu
89                35                  40                  45
90        Ser Cys Asp Tyr Asn Ile Ser Thr Lys Glu Leu Thr Glu Ile Arg Ile
91            50                  55                  60
92        Tyr Trp Gln Lys Asp Asp Glu Met Val Leu Ala Val Met Ser Gly Lys
93        65                  70                  75                  80
94        Val Gln Val Trp Pro Lys Tyr Lys Asn Arg Thr Phe Thr Asp Val Thr
```

OIPE

PAGE: 3

RAW SEQUENCE LISTING
PATENT APPLICATION US/09/303,040

DATE: 05/18/1999
TIME: 08:24:56

Input Set: I303040.RAW

```
                                      85                        90                    95
 95          Asp Asn His Ser Ile Val Ile Met Ala Leu Arg Leu Ser Asp Asn Gly
 96                            100                       105                110
 97          Lys Tyr Thr Cys Ile Ile Gln Lys Ile Glu Lys Gly Ser Tyr Lys Val
 98                      115                       120                125
 99          Lys His Leu Thr Ser Val Met Leu Leu Val Arg Ala Asp Phe Pro Val
100                130                       135                140
101          Pro Ser Ile Thr Asp Leu Gly Asn Pro Ser His Asn Ile Lys Arg Ile
102          145                       150                155                160
103          Met Cys Leu Thr Ser Gly Gly Phe Pro Lys Pro His Leu Ser Trp Leu
104                            165                       170                175
105          Glu Asn Glu Glu Glu Leu Asn Ala Ile Asn Thr Thr Val Ser Gln Asp
106                      180                       185                190
107          Pro Glu Thr Glu Leu Tyr Thr Ile Ser Ser Glu Leu Asp Phe Asn Met
108                195                       200                205
109          Thr Asn Asn His Ser Phe Leu Cys Leu Val Lys Tyr Gly Asn Leu Leu
110                210                       215                220
111          Val Ser Gln Ile Phe Asn Trp Gln Lys Ser Glu Pro Gln Pro Ser Asn
112          225                       230                235                240
113          Asn Gln Leu Trp Ile Ile Ile Leu Ser Ser Val Val Ser Gly Ile Val
114                            245                       250                255
115          Val Ile Thr Ala Leu Thr Leu Arg Cys Leu Val His Arg Pro Ala Ala
116                      260                       265                270
117          Arg Trp Arg Gln Arg Glu Met Gly Arg Ala Arg Lys Trp Lys Arg Ser
118                275                       280                285
119          His Leu Ser Thr
120                            290
121
122      <210> SEQ ID NO 3
123      <211> LENGTH: 879
124      <212> TYPE: DNA
125      <213> ORGANISM: feline CD80
126      <220> FEATURE:
127      <221> NAME/KEY: CDS
128      <222> LOCATION: (1)..(876)
129      <400> SEQUENCE: 3
130          atg ggt cac gca gca aag tgg aaa aca cca cta ctg aag cac cca tat      48
131          Met Gly His Ala Ala Lys Trp Lys Thr Pro Leu Leu Lys His Pro Tyr
132          1               5                       10                  15
133          ccc aag ctc ttt ccg ctc ttg atg cta gct agt ctt ttt tac ttc tgt      96
134          Pro Lys Leu Phe Pro Leu Leu Met Leu Ala Ser Leu Phe Tyr Phe Cys
135                        20                      25                  30
136          tca ggt atc atc cag gtg aac aag aca gtg gaa gaa gta gca gta cta     144
137          Ser Gly Ile Ile Gln Val Asn Lys Thr Val Glu Glu Val Ala Val Leu
138                        35                      40                  45
139          tcc tgt gat tac aac att tcc acc aaa gaa ctg acg gaa att cga atc     192
140          Ser Cys Asp Tyr Asn Ile Ser Thr Lys Glu Leu Thr Glu Ile Arg Ile
141                  50                      55                  60
142          tat tgg caa aag gat gat gaa atg gtg ttg gct gtc atg tct ggc aaa     240
143          Tyr Trp Gln Lys Asp Asp Glu Met Val Leu Ala Val Met Ser Gly Lys
144                  65                      70                  75                  80
```

145	gta	caa	gtg	tgg	ccc	aag	tac	aag	aac	cgc	aca	ttc	act	gac	gtc	acc	288
146	Val	Gln	Val	Trp	Pro	Lys	Tyr	Lys	Asn	Arg	Thr	Phe	Thr	Asp	Val	Thr	
					85				90				95				
147	gat	aac	cac	tcc	att	gtg	atc	atg	gct	ctg	cgc	ctg	tca	gac	aat	ggc	336
148	Asp	Asn	His	Ser	Ile	Val	Ile	Met	Ala	Leu	Arg	Leu	Ser	Asp	Asn	Gly	
149					100				105			110					
150	aaa	tac	act	tgt	atc	att	caa	aag	att	caa	aaa	ggg	tct	tac	aaa	gtg	384
151	Lys	Tyr	Thr	Cys	Ile	Ile	Gln	Lys	Ile	Gln	Lys	Gly	Ser	Tyr	Lys	Val	
152				115				120				125					
153	aaa	cac	ctg	act	tcg	gtg	atg	tta	ttg	gtc	aga	gct	gac	ttc	cct	gtc	432
154	Lys	His	Leu	Thr	Ser	Val	Met	Leu	Leu	Val	Arg	Ala	Asp	Phe	Pro	Val	
155			130				135				140						
156	cct	agt	ata	act	gat	ctt	gga	aat	cca	tct	cat	aac	atc	aaa	agg	ata	480
157	Pro	Ser	Ile	Thr	Asp	Leu	Gly	Asn	Pro	Ser	His	Asn	Ile	Lys	Arg	Ile	
158						150				155					160		
159	atg	tgc	tta	act	tct	gga	ggt	ttt	cca	aag	cct	cac	ctc	tcc	tgg	ctg	528
160	Met	Cys	Leu	Thr	Ser	Gly	Gly	Phe	Pro	Lys	Pro	His	Leu	Ser	Trp	Leu	
161				165					170				175				
162	gaa	aat	gaa	gaa	gaa	tta	aat	gcc	atc	aac	aca	aca	gtt	tcc	caa	gat	576
163	Glu	Asn	Glu	Glu	Glu	Leu	Asn	Ala	Ile	Asn	Thr	Thr	Val	Ser	Gln	Asp	
164				180					185				190				
165	cct	gaa	act	gag	ctc	tac	act	att	agc	agt	gaa	ctg	gat	ttc	aat	atg	624
166	Pro	Glu	Thr	Glu	Leu	Tyr	Thr	Ile	Ser	Ser	Glu	Leu	Asp	Phe	Asn	Met	
167				195				200				205					
168	aca	aac	aac	cat	agc	ttc	ctg	tgt	ctt	gtc	aag	tat	gga	aac	tta	ata	672
169	Thr	Asn	Asn	His	Ser	Phe	Leu	Cys	Leu	Val	Lys	Tyr	Gly	Asn	Leu	Ile	
170			210				215				220						
171	gta	tca	cag	atc	ttc	aac	tgg	caa	aaa	tca	gag	cca	cag	cct	tct	aat	720
172	Val	Ser	Gln	Ile	Phe	Asn	Trp	Gln	Lys	Ser	Glu	Pro	Gln	Pro	Ser	Asn	
173		225				230				235				240			
174	aat	cag	ctc	tgg	atc	att	atc	ctg	agc	tca	gta	gta	agt	ggg	att	gtt	768
175	Asn	Gln	Leu	Trp	Ile	Ile	Ile	Leu	Ser	Ser	Val	Val	Ser	Gly	Ile	Val	
176				245				250				255					
177	gtg	atc	act	gca	ctt	acc	tta	aga	tgc	cta	gtc	cac	aga	cct	gct	gca	816
178	Val	Ile	Thr	Ala	Leu	Thr	Leu	Arg	Cys	Leu	Val	His	Arg	Pro	Ala	Ala	
179			260				265				270						
180	agg	tgg	aga	caa	aga	gaa	atg	ggg	aga	gcg	cgg	aaa	tgg	aaa	aga	tct	864
181	Arg	Trp	Arg	Gln	Arg	Glu	Met	Gly	Arg	Ala	Arg	Lys	Trp	Lys	Arg	Ser	
182		275				280					285						
183																	879
184	cac	ctg	tct	aca	tag												
185	His	Leu	Ser	Thr													
186		290															

```
187  <210> SEQ ID NO 4
188  <211> LENGTH: 292
189  <212> TYPE: PRT
190  <213> ORGANISM: feline CD80
191  <400> SEQUENCE: 4
192      Met Gly His Ala Ala Lys Trp Lys Thr Pro Leu Leu Lys His Pro Tyr
193       1               5                  10                  15
194      Pro Lys Leu Phe Pro Leu Leu Met Leu Ala Ser Leu Phe Tyr Phe Cys
```

OIPE

PAGE: 5

RAW SEQUENCE LISTING
PATENT APPLICATION US/09/303,040

DATE: 05/18/1999
TIME: 08:24:56

Input Set: I303040.RAW

```
                          20                  25                  30
195                                        Thr Val Glu Glu Val Ala Val Leu
196          Ser Gly Ile Ile Gln Val Asn Lys              45
                      35                  40
197                                        Lys Glu Leu Thr Glu Ile Arg Ile
198          Ser Cys Asp Tyr Asn Ile Ser Thr              60
                      50                  55
199                                        Glu Met Val Leu Ala Val Met Ser Gly Lys
200          Tyr Trp Gln Lys Asp Asp              75              80
                      65                  70
201                                        Tyr Lys Asn Arg Thr Phe Thr Asp Val Thr
202          Val Gln Val Trp Pro Lys              90              95
                      85
203                                        Met Ala Leu Arg Leu Ser Asp Asn Gly
204          Asp Asn His Ser Ile Val Ile              105             110
                      100
205                                        Gln Lys Ile Gln Lys Gly Ser Tyr Lys Val
206          Lys Tyr Thr Cys Ile Ile              120             125
                      115
207                                        Leu Leu Val Arg Ala Asp Phe Pro Val
208          Lys His Leu Thr Ser Val Met              135             140
                      130
209                                        Gly Asn Pro Ser His Asn Ile Lys Arg Ile
210          Pro Ser Ile Thr Asp Leu              155             160
                      145             150
211                                        Pro Lys Pro His Leu Ser Trp Leu
212          Met Cys Leu Thr Ser Gly Gly Phe              170             175
                      165
213                                        Ala Ile Asn Thr Thr Val Ser Gln Asp
214          Glu Asn Glu Glu Glu Leu Asn              185             190
                      180
215                                        Ser Ser Glu Leu Asp Phe Asn Met
216          Pro Glu Thr Glu Leu Tyr Thr Ile              205
                      195             200
217                                        Leu Cys Leu Val Lys Tyr Gly Asn Leu Ile
218          Thr Asn Asn His Ser Phe              215             220
                      210
219                                        Gln Lys Ser Glu Pro Gln Pro Ser Asn
220          Val Ser Gln Ile Phe Asn Trp              235             240
                      225             230
221                                        Ser Ser Val Val Ser Gly Ile Val
222          Asn Gln Leu Trp Ile Ile Ile Leu              250             255
                      245
223                                        Arg Cys Leu Val His Arg Pro Ala Ala
224          Val Ile Thr Ala Leu Thr Leu              265             270
                      260
225                                        Met Gly Arg Ala Arg Lys Trp Lys Arg Ser
226          Arg Trp Arg Gln Arg Glu              280             285
                      275
227
228          His Leu Ser Thr
229              290
230     <210> SEQ ID NO 5
231     <211> LENGTH: 1080
232     <212> TYPE: DNA
233     <213> ORGANISM: feline CD86
234     <220> FEATURE:
235     <221> NAME/KEY: CDS
236     <222> LOCATION: (63)..(1052)
237     <400> SEQUENCE: 5
238          gtttctgtgt tcctcgggaa tgtcactgag cttatacatc tggtctctgg gagctgcagt  60
239          gg atg ggc att tgt gac agc act atg gga ctg agt cac act ctc ctt     107
240             Met Gly Ile Cys Asp Ser Thr Met Gly Leu Ser His Thr Leu Leu
241              1               5                   10                  15
242          gtg atg gcc ctc ctg ctc tct ggt gtt tct tcc atg aag agt caa gca    155
243          Val Met Ala Leu Leu Leu Ser Gly Val Ser Ser Met Lys Ser Gln Ala
244                      20                  25                  30
```

VERIFICATION SUMMARY
PATENT APPLICATION US/09/303,040

Input Set: I303040.RAW

Line	?	Error/Warning	Original Text		
					3
301	W	Invalid/Missing Amino Acid Numbering	320	325	